a proper mercurial course of treatment is begun, and the more faithfully it is carried out, the better are the chances that the eyes will escape. And I think we may safely say, that the unfavourable cases of syphilitic lesions of the eye, those which we see for the first time long after the trouble has commenced, have reached this condition from lack of proper treatment, or from worse neglect. Mercury and iodide of potassium, with iron and quinia, and a proper attention to diet and hygiene, will do wonders when the case is understood.

214 West 44th Street, N. Y., Sept. 10, 1874.

Art. XII.—*On "Bloodless Surgery."* By John R. McClurg, M.D., of West Chester, Pennsylvania.

Inasmuch as Professor Esmarch's "Bloodless Method" for surgical cases is now claiming the attention of the world, and as in its connection one of the leading surgeons of Europe recently said that "operative surgery has reached the utmost bounds of perfection," while another declared that "this country—England—and America divide the conspicuous honour inseparable from the discovery of anæsthesia, that Chassaignac's system of drainage, to which justice has scarcely been done, is one of the greatest contributions amongst the many with which Frenchmen have enriched surgical art," and that "now the Professor of Surgery at Keil has introduced a method of procedure calculated to influence most beneficially, in the conjoined interest of science and humanity, a large domain of surgical practice," a few remarks upon this "triumph of surgery" may not be superfluous. The great advantage claimed for Esmarch's method is the saving of blood, that operations can be performed and limbs removed with little more than the mere sight of blood, not one drop of arterial blood being lost. It is not, however, so far as I know, claimed that the divided tissues heal more readily, that the shock to the system is in any degree lessened, that subsequent oozing and secondary hemorrhage are less likely to occur, or sloughing, mortification, or pyæmia to follow an amputated limb. But while it is admitted that by the use of the elastic roller and cord *bloodless operating* can be attained in favourable situations, as upon the extremities, yet all do not admit that even here do we have *bloodless operations*, for after the removal of the elastic bandage or cord, a general and "continued oozing of blood from the divided tissues invariably follows, which necessarily prevents primary union of the wound." If the saving of blood to the patient was the only thing necessary, or even one of the principal requisites to insure success in surgical operations, we could not be too careful in taking advantage of every appliance to attain that object, but experience forces me to believe that the loss of blood in ordinary amputations and other surgical operations, has very little to do with the result in a vast majority of them. How often in other cases, as in epistaxis in children, in *post-partum* hemorrhage, and puerperal eclampsia, do we have the loss of vast quantities of blood, yet with the most successful terminations. In puerperal eclampsia the physician will occasionally take from thirty to one hundred ounces of blood, and the patient afterwards speedily recovers her health again. There is no doubt, that, by loss of blood, as after a copious venesection, or where in an accident great vessels have been opened, the quantity of that fluid in the system is diminished, and anæmia may result for a short time, after which, by rapid absorption of fresh matter, the amount of blood speedily becomes in quantity as before. The blood is undoubtedly for a still longer time of a different composition than before the abstraction, containing fewer corpuscles, a deficiency of the salts, and more water and albumen, but this state is more properly one of spanæmia than anæmia. But I do regard it to be advisable in all surgical operations, when at all practicable, to keep the general circulation as normal as possible; therefore, upon primary cases following great loss of blood, every effort should be made to prevent further loss, forcing as much of the blood from the limb into the general circulation as possible before amputation; in which effort we would not induce an abnormal but promote a normal state of the bloodvessels. This procedure is also advisable in many other operations, as in the removal of tumours and other morbid growths, in operations upon the extremities, and particularly in resections when the tissues are not infiltrated with pus or unhealthy sanies, and in which there is no curtailing of the body, as we have in amputations.

But even in primary cases resulting from severe injury or otherwise, unattended by loss of blood, I doubt the propriety, in amputations, say of the thigh at the upper third, of attempting to force all the blood contained in the limb into the general circulation of the remaining portion of the body. The effort if accomplished would surely produce an abnormal and hyperæmic condition, in which a preternatural accumulation of blood in the capillary vessels of the brain, or some other organ, may follow, until these vessels, increased to double or even triple the ordinary size, then not unfrequently become ruptured. I have amputated the thigh quite a number of times in private and in military practice; more than a dozen times at the upper third, three-fourths of which recovered, and I have been well satisfied always to leave the blood in the limb, together with the pus, sanies, and septic maters with which the tissues may have been saturated, stopping the flow of blood the moment before using the knife by compression at the inguinal region with Petit's tourniquet with a strap long enough to pass around under the perineum, up behind the pelvis, and then forwards over the crest of the ileum and buckled in front. I would, however, advise in many instances the use of Esmarch's *elastic cord* instead of Petit's tourniquet to arrest completely the flow of blood from the system, dispensing with the *elastic roller* to the limb in all cases like the following, which I give in this connection as fair samples of those usually requiring amputation, except upon the battle field, or after great accidents.

Case I.—Isaac B. Jefferis, 46 years of age, a farmer, six feet in height, healthy and of active business habits, was injured by a horse on the 26th of June, 1874, receiving a complicated fracture of the left leg, in which both bones were comminuted at the ankle, the soft parts injured and torn open some three inches on its external aspect. I made every possible effort to save the limb, but on the 29th, the foot was cold and the ankle was covered with the bullæ of traumatic gangrene, while the patient had nausea and vomiting, very restless and anxious, high fever, quick pulse, and no disposition to take the least nourishment. On the 30th he was more comfortable, less fever, pulse 120, the limb much swollen, the foot and ankle cold and gangrenous. July 1st more comfortable, entirely free from pain, pulse 120, temperature reduced, and the skin moist, the foot and ankle mortified, while the leg was much swollen to the knee, and the cellular tissues infiltrated with unhealthy sanies. Amputated at four o'clock P.M. Anæsthetic, equal parts of chloroform and Squibb's sulph. ether, two and a half ounces used, Petit's tourniquet applied, and the limb amputated at the middle third of the thigh, antero-posterior flap operation. The patient rallied well, the stump healed by first intention with hardly one ounce of discharge from the time of first dressing, and upon the fifth week from the date of injury he was attending to his business.

Case II.—John Scott, 26 years of age, a farmer, was injured some three years since by a horse, and suffered for a long time afterwards with what was supposed to be chronic synovitis of the right knee. During the past eighteen months he became much worse, suffering intensely, and became reduced to the brink of the grave by long-continued and profuse suppuration of the whole limb. On July 24th, 1874, I found him greatly emaciated and so weak and his limb so painful that it was impossible for him even to turn in bed, pulse very feeble, and 140, skin cold and moist, the limb much swollen, very painful, the cartilages of the knee destroyed by ulceration, and the bones necrosed, while a large collection of unhealthy matter burrowed amongst the muscles up to the groin. It was thought to be almost impossible for him to stand the shock of amputation, but this being his only chance for life, I gave him four ounces of good whiskey, and soon arterwards had him under the influence of the anæsthetic—equal parts of chloroform and Squibb's sulph. ether, two ounces being required. Petit's tourniquet was applied, and the limb amputated at the upper third of the thigh, *bilateral flaps*, or half way between the antero-posterior and the lateral methods; loss of blood about four ounces. The patient rallied well, no doubt assisted by the whiskey, for in addition to the quantity given before the operation, four ounces were administered by injection upon the removal of the limb, and soon after two ounces more to drink. He was well nourished with whiskey punch, egg-nog, extract of beef, chicken broth, milk, etc., and recovered strength rapidly, the stump healing slowly with moderate discharge, and he is to-day, August 17th, sitting up and will surely recover perfectly.

CASE III.—Some time since I amputated the thigh at the upper third in the case of a little son (14 years of age) of Mr. M. Wright, for encephaloid cancer of the knee. The foot and ankle were not much swollen, but the knee was almost as large as the patient's head, the skin unbroken, the bones of the joint entirely destroyed, and their place filled with a great mass of encephaloid substance and putrid fluid. The patient was greatly prostrated, and required only about one and a half ounces of the anæsthetic; the artery was compressed at the pubis by an assistant; antero-posterior flap operation; loss of blood about four ounces. He improved rapidly in strength, while the stump slowly but completely healed. Some months afterwards, I learned from his physician, that he died from an attack of pneumonia.

I could give many other cases, but these are sufficient at this time, and are good samples of those usually requiring amputation, and are certainly not such as should be regarded as favourable for Esmarch's method. In the hands of judicious surgeons the elastic roller and cord will without doubt prove a most valuable acquisition, yet their indiscriminate use should be avoided, for it is infinitely better for the patient to lose a few ounces of blood, even if in a prostrated and anæmic condition, than to force from the limb its poisoned blood, septic matter, or unhealthy sanies, or indeed even healthy pus with which the tissues may be saturated, into the general circulation to poison the whole blood mass, or into the structures forming the stump, thence to be absorbed into the system, or to slowly return and ooze from the cut tissues to poison them and retard union. I do believe it is possible for large collections of unhealthy matters to remain pent up in almost any portion of the body for a long time, and the system not be contaminated thereby, but not so when by violence we rupture these cysts and sinuses, together with the capillary vessels, and indeed even larger blood-vessels, and forcing these matters far beyond their original location into the cellular tissue and general circulation. In such cases pyæmia or septicæmia and death follow.

WEST CHESTER, Pennsylvania, Aug. 17, 1874.

ART. XIII.—*Amputations by Ligature and Elastic Cord.* By N. R. SMITH, M.D., Emeritus Professor of Surgery in the University of Maryland. (With a wood-cut.)

THE use of the ligature in aid of the knife, in amputations, dates with me some twenty years anterior to the present. This means of effecting the removal of parts has been strongly suggested by the remarkable case, familiar to my readers, of the penetration of the scalp and even the bones